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mutant protein (a mutant lov-1 protein). Thus, claim 31 is directed to a transgenic nematode that contains nucleic acid encoding a mutant lov-1 protein. The difference between claim 89 and claim 31 is primarily that claim 31 specifies that the mutant gene is introduced on a vector. Although the claims are of different scope, both claims are directed to strains of nematodes that contain mutant LOV-1 genes, and, thus overlap.

Thus, if this requirement is maintained, the instant applicant could be granted two patents that expire on different dates and that include claims to overlapping subject matter. For example, If a patent with group I issues before the patent to group XI, the later issuing patent, which includes claims overlapping and possibly encompassing those of group I, cannot constitute obvious-type double patenting over the earlier issuing patent. See MPEP 806, paragraph 3, which states:

[w]here inventions are related as disclosed but are not distinct as claimed, restriction is never proper. Since, if restriction is required by the Office double patenting cannot be held, it is imperative the requirement should never be made where related inventions as claimed are not distinct.

See, also MPEP 804.01, which states:

35 U.S.C.121, third sentence, provides that wherein the Office requires restriction, the patent of either the parent or any divisional application thereof conforming to the requirement cannot be used as a reference against the other. This apparent nullification of double patenting as ground of rejection or invalidity in such cases imposes a heavy burden on the Office to guard against erroneous requirements for restriction where the claims define essentially the same inventions in different language and which, if acquiesced in, might result in the issuance of several patents for the same invention.

Groups II and XII

A similar argument can be made as between group XII and group II. Group XII, claims 88 and 90, is directed to nematode strains that contain mutated PKD-2 genes. Claim 39 is directed to transgenic nematodes that contain mutated PKD-2 genes. Although the claims are of different scope, both sets of claims are directed to strains of nematodes that contain mutant PKD-2 genes, and, thus overlap.

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Therefore, obviousness-type double patenting cannot be held as between claims of Group II and XII if they issue in different patents.

Group V and Group IV or Group III

Group V, claim 50, is directed to a LOV-1-PKD-2 protein complex; group III is directed to LOV-1 protein and group IV is directed to PKD-2 protein. Hence Group V is related to each of groups III and IV as a combination subcombination. As between subject matter related as a combination/subcombination, a showing of two-way distinctness required. Specifically, restriction may be proper **only** if it can be shown that the combination as claimed does not require the particulars of the subcombination as claimed for patentability **AND** that the subcombination has utility by itself or in other combinations. See MPEP 808.05(c).

In this instance, each of the subcombinations, LOV-1 protein or PKD-2 protein has utility by itself, such as preparation specific antibodies. Therefore, as between Group V and Group III or Group IV, restriction is not proper.

Traverse of the requirement as between groups VI-X and/or as between I or II and VI-X

This application is directed to genes that are components of a pathway in nematodes and that are shown in this application to be linked to observable behaviors. In particular, each of the encoded proteins, LOV-1 and PKD-2 are components in a pathway that, as shown in the instant application, leads to the observed phenotypical behaviors. Provided in the application are the genes encoding the wild-type nematode genes and mutated forms of the genes involved in this pathway and behaviors. Also provided are nematodes that contain mutated forms of the genes, and methods that are based upon the fact that these genes are linked to observable behaviors and that the genes have homologous counterparts in a pathway in mammals.

In particular, the pathway is shown to be homologous to the pathway in which the mammalian polycystins, PKD1 and PKD2, participate. In particular, it is shown in the application, that a mutation in nematodes, which gives rise to males that are defective in mating behavior, lies in a gene designated herein *lov-1*

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(location of vulva). This gene, *lov-1*, is shown to be required for two male sensory behaviors, 'response' and 'location of vulva'(Lov). A second gene, designated *pkd-2*, that affects this behavior in a similar manner is also identified and provided in the application.

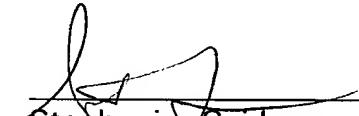
All of the claimed methods derive from these observations. Although each of the methods could find a separate basis for patentability, if any one of the methods is patentable because one of these observations, all of the methods will be patentable. Therefore, since all of the methods derive from a common observation and from identification of the genes, the methods could readily be examined in a single application without burden on the Office. Furthermore, if Group I or Group II, which each include method claims, are found to be patentable, groups VI-X will necessarily be novel and unobvious.

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Therefore, reconsideration of the Requirement for Restriction is respectfully requested. In particular, joinder of groups III-V, I and XI, II and XII, and VI-X, is respectfully requested.

Respectfully submitted,
HELLER EHRMAN WHITE & McAULIFFE LLP

By:


Stephanie L. Seidman
Registration No. 33,779

Attorney Docket No. 18021-2919B
Address all correspondence to:
Stephanie L. Seidman
HELLER EHRMAN WHITE & McAULIFFE LLP
4250 Executive Square, 7th Floor
La Jolla, California 92037
Telephone: 858 450-8400
Facsimile: 858 587-5360
email:sseidman@HEWM.com